Amendment to the Claims:

1-8. (Cancelled)

9. (Previously Presented) An apparatus for monitoring a patient comprising:

a plurality of leads carrying monitored signals from the patient;

a memory which stores values of the monitored signals carried on each of the plurality of leads at a plurality of points in time;

a processor coupled to each of the plurality of leads, said processor being programmed to:

calculate convex hulls for each of a plurality of pairs of monitored signals from the plurality of leads,

determine when a perturbation has occurred in one or more of the plurality of convex hulls,

in response to determining that a perturbation has occurred in one or more of the convex hulls, generating an alert signal; and

a user interface coupled with the processor to receive the alert signal and present a corresponding alert to a user.

10. (Previously Presented) The apparatus according to claim 9, wherein said processor outputs the alert signal to the user interface to indicate that a clinically significant change may have occurred in the patient when perturbations exist in a plurality of convex hulls of a plurality of plots of monitored signal pairs, or indicating that an artifact may exist in one or more of a plurality of monitored signals when a perturbation exists only in a subset of the plurality of convex hulls of the plurality of plots of monitored signal pairs and not in a remaining plurality of convex hulls of the plurality of plots of monitored signal pairs.

11. (Previously Presented) The apparatus according to claim 9, wherein the user interface includes a display coupled to the processor to display each of the plurality of signals from the plurality of leads and to display a plurality of plots of each of the plurality of signals with respect to one of the other plurality of signals.

12. (Previously Presented) The apparatus according to claim 11, wherein said display overlays a calculated convex hull for each of the plurality of plots.

13-23. (Cancelled)

24. (Withdrawn) A method for monitoring a patient comprising:

plotting a first plurality of points from a first monitored signal versus a second plurality of points from a second monitored signal;

plotting a third plurality of points from a third monitored signal versus the first plurality of points and the second plurality of points;

determining if there is a perturbation in each of the plots; and

providing an alert that a clinically significant change may have occurred in the patient if perturbations are determined in each of the plots;

providing an alert that an artifact may exist if a perturbation is determined in less than all of the plots.

25. (Previously Presented) The apparatus according to claim 9, wherein the processor is further programmed to:

determine whether a perturbation has occurred in all of the convex hulls, in response to a perturbation having occurred in all of the convex hulls, the generated alert signal indicating that a clinically significant change in the patient has occurred.

26. (Previously Presented) The apparatus according to claim 25, wherein the processor is further programmed to:

determine whether a perturbation has occurred in only some of the complex hulls but not all of the complex hulls, in response to determining that a

perturbation has occurred in only some of the convex hulls, the generated alert signal indicating that an artifact may exist.

27. (Previously Presented) The apparatus according to claim 9, wherein the processor is further programmed to:

determine whether a perturbation has occurred in only some of the complex hulls but not all of the complex hulls, in response to determining that a perturbation has occurred in only some of the convex hulls, the generated alert signal indicating that an artifact may exist.

28 [[29]]. (Currently Amended) The apparatus according to claim 9, wherein the processor is further programmed to:

generate plots of the monitored signals;

overlay the calculated convex hull with each of the plots; and

control the user interface to display the overlayed plots and convex hulls.

29. (Previously Presented) The apparatus according to claim 9, wherein the processor is further programmed to:

quantify a shape of the perturbations of the convex hulls.

30. (Previously Presented) The apparatus according to claim 9, wherein the processor is further programmed to:

determine whether perturbations in a plurality of the convex hulls are proportional.

31. (Previously Presented) The apparatus according to claim 9, wherein determining whether the perturbation has occurred includes:

comparing a current convex hull with a prior convex hull to determine a difference.

32. (Previously Presented) The apparatus according to claim 31, wherein determining the perturbation further includes at least one of:

determining whether a vertex of the current convex hull is different from a vertex of the previous convex hull; and

determining whether a centroid of a current convex hull is different from a centroid of the previous convex hull.

33. (Currently Amended) An apparatus for monitoring a patient comprising:

[[one]] a plurality of leads carrying first, second, third, and fourth monitored signals from a patient;

a memory which stores values of the first, second, third, and fourth monitored signals at a plurality of points in time;

a processor coupled to the leads and the memory, the processor being programmed to:

determine a first convex hull for a first plurality of points, each point of the first plurality of points having a first coordinate being a value of the first monitored signal at a specific moment in time, and having a second coordinate being a value of the second monitored signal at the specific moment in time,

determine a second convex hull for a second plurality of points, each point of the second plurality of points having a first coordinate being a value of the third monitored signal at the specific moment in time, and having a second coordinate being a value of the fourth monitored signal at the specific moment in time,

monitoring the first and second convex hulls to determine when a perturbation has occurred in either of the first and second convex hulls,

determining, upon detecting a perturbation in one of the first and second convex hulls, whether a perturbation has occurred in the other of the first and second convex hulls; and

a user interface connected with the processor by which in response to the processor determining that an operator is alerted that a clinically significant

change may have occurred in the patient if both the first and second convex hulls have been perturbed.

34. (Withdrawn) An apparatus for monitoring a patient comprising:

a plurality of leads carrying a plurality of monitored signals from a patient;

a processor connected to the leads and programmed to:

plot a first plurality of points from a first of the monitored signals versus a second plurality of points from a second of the monitored signals;

plot a third plurality of points from a third of the monitored signals versus the first plurality of points and the second plurality of points,

determine whether there is a perturbation in each of the plots, and

controlling a user interface to provide an alert that a clinically significant change may have occurred in the patient in response to determining perturbations in at least one of the plots.

35. (Withdrawn) The apparatus according to claim 34, wherein the processor is further programmed to control the user interface to provide an alert that an artifact may exist in response to determining a perturbation in less than all of the plots.

36. (Previously Presented) The method for monitoring a patient comprising:

carrying a plurality of monitored signals on a plurality of leads;

in a memory, storing values of the monitored signals carried on each of the plurality of leads at a plurality of points in time;

with a processor coupled to each of the plurality of leads performing the steps of:

calculating convex hulls for each of a plurality of pairs of the monitored signals from the plurality of leads,

determining when a perturbation has occurred in one or more of the convex hulls,

in response to determining that a perturbation has occurred in one or more of the convex hulls, generating an alert signal; and

with a user interface, receiving the alert signal from the processor and presenting a corresponding alert to a user.

37. (Previously Presented) The method according to claim 36, further including:

determining whether a perturbation has occurred in all of the convex hulls, in response to a perturbation having occurred in all of the convex hulls, the generated alert signal indicates that a clinically significant change in the patient has occurred.

38. (Previously Presented) The method according to claim 36, further including:

determining whether a perturbation has occurred in only some of the convex hulls, but not in all of the convex hulls, in response to determining that a perturbation has occurred in only some of the convex hulls, the generated alert signal indicates that an artifact may exist.

39. (Previously Presented) The method according to claim 36, further including at least one of:

quantifying a shape of the perturbations of the convex hulls;

determining whether determined perturbations in a plurality of the convex hulls are proportional.

40. (Previously Presented) The method according to claim 36, wherein determining whether a perturbation has occurred includes:

comparing a current convex hull with a prior convex hull.

41. (Previously Presented) A method for monitoring a patient comprising:

carrying first, second, third, and fourth monitored signals from a patient on a plurality of leads;

storing values of the first, second, third, and fourth monitored signals at a plurality of points in time in a memory;

with a processor:

determining a first convex hull for a first plurality of points, each point of the first plurality of points having a first coordinate being a value of the first monitored signal at a specific moment in time, and having a second coordinate being a value of the second monitored signal at the specific moment in time,

determining a second convex hull for a second plurality of points, each of the second plurality of points having a first coordinate being a value of the first monitored signal at a specific moment in time, and having a second coordinate being a value of the fourth monitored signal at the specific moment in time;

determining, upon detection of a perturbation in one of the first and second convex hulls, whether a perturbation has occurred in the other of the first and second convex hulls;

with a user interface, alerting an operator that a clinically significant change may have occurred in the patient in response to determining that both the first and second convex hulls have been perturbed.

42. (Withdrawn) A method for monitoring a patient comprising:

carrying a plurality of monitored signals from a patient on a plurality of leads;

with a processor performing the steps of:

plotting a first plurality of points from a first of the monitored signals versus a second plurality of points from a second of the monitored signals,

plotting a third plurality of points from a third of the monitored signals versus the first plurality of points and the second plurality of points,

determining whether there is a perturbation in each of the plots, and

controlling a user interface to provide an alert that a clinically significant change may have occurred in the patient in response to determining perturbations in at least one of the plots.

43. (Previously Presented) A non-transitory computer readable medium carrying software which controls one or more processors to perform the steps of:

receiving a plurality of monitored signals carried on a plurality of leads;

storing values of the monitored signals carried on the plurality of leads at a plurality of points in time, in a memory;

calculating convex hulls for each of a plurality of pairs of the monitored signals from the plurality of leads;

determining when a perturbation has occurred in one or more of the convex hulls;

in response to determining that a perturbation has occurred in one or more of the convex hulls, generating an alert signal; and

controlling a user interface to receive the alert signal and to present a corresponding alert to a user.